(c) comparing said induced spectrum of step (b) with said characteristic spectrum to detect the presence of said microorganism in said sample , the sample having at least 200 fold antibody molecules in excess of target antigen.

11. The method of claim 9 ~~wherein said characteristic~~ spectrum is at 14[98] 85 cm^{-1}.

REMARKS

The office action of April 26, 1999 has been received and the comments of the Examiner have been carefully considered.

Claim 11 has been rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. More specifically, the Examiner has stated that there is no reference in the specification describing the method of detecting the presence of a microorganism in a sample using the characteristic spectrum at 1498 cm^{-1}. Accordingly, the Examiner has required that a supplemental oath be submitted for claims embracing subject matter not originally embraced in the statement of invention. The Examiner has also rejected claims 2, 9 and 12 under 35 U.S.C. 103(a) as being obvious over Nelson et al. (US 4,487,198) in view of Herron et al. (US 5,512,492) and Chadha et al. in view of Herron et al.

Claim 9 has been amended thereby raising new issues for consideration.

Claim 11 has been amended.

Applicant respectfully submits that, as amended, the Examiner's rejection of claim 11 pursuant to 35 U.S.C. 112, first paragraph, is obviated and a supplemental oath is no longer necessitated.

Claims 2, 9 and 12 have been rejected under 35 U.S.C. 103(a) as being obvious over Nelson et al. (US 4,487,198) in view of Herron et al. Nelson et al. teaches an apparatus and a method of detection and identification of bacteria by ultra-violet excited resonance Raman spectra. Generally, the method comprises exciting taxonomic markers in a bacterium with ultra violet light to produce resonance enhanced Raman backscattered energy, converting the energy to correspond to the taxonomic markers and displaying the spectra such that the bacterium may be detected and identified. Chadha et al. further teaches that over the past few years resonance Raman spectra of bacteria and bacterial spores excited at 200-257nm have been reported.

Herron et al. discloses a fluorescence immunoassay method for detecting the presence of microorganisms in an analyte comprising immobilizing capture molecules, i.e. antibodies, on a substrate, contacting a sample solution of the analyte, i.e. a buffer and tracer molecules capable of emitting fluorescence in response to stimulation by light, directing light on said substrate and detecting and measuring the fluorescent light emitted from the tracer molecules bound to the capture molecules.

Applicant claims a method for detecting the presence of a specific microorganism in a sample comprising contacting the sample with a medium having solid phase immobilized antibodies which specifically bind to a characteristic cell surface antigen of a microorganism which, if the microorganisms is present in the sample will form an immobilized antigen-antibody complex, irradiating the medium with laser light of 242-257nm to produce a resonance enhanced Raman backscattered energy spectrum, and comparing the results of the induced spectrum with known spectrums correlated with previously identified microorganisms

to detect the presence of a specific microorganism in the sample, the sample being comprised of at least 200 fold antibodies.

Applicant herein submits that the amendment to claim 9, and further in view of the foregoing arguments, has traversed the obviousness rejections. It is the Examiner's position that it would have been obvious to one of ordinary skill in the art to combine the teachings of Nelson et al. and Chadha et al. which disclose a method of identifying a species of bacteria by means of ultra-violet excited resonance Raman spectra with Herron et al. which discloses a fluoroimmunoassay method for detecting bacteria comprising immobilizing capture molecules on a substrate, applying a solution of an analyte and tracer molecules to the substrate, directing light towards the substrate, and detecting the amount of emitted fluorescent light from the tracer molecules bound to the capture molecules.

Applicant submits there is no reasonable expectation of success that Applicant's claimed invention would be operable from the proposed combination of references. Herron et al. is directed towards a method of detecting bacteria using fluoroimmunoassay, i.e. the detection of fluorescent light from bound tracer molecules. Whether an immobilized antibody's resonance enhanced backscattered energy would interfere with a bacteria's resonance enhanced backscattered energy is irrelevant to the fluoroimmunoassay teaching disclosed in Herron et al. but is critical to identification methods for bacteria using resonance enhanced Raman backscattered spectra. Clearly, the Herron et al. reference clearly does not teach or suggest that the Raman spectra of an antibody creates only *de minimis* interference with the resonance Raman spectra of the bacteria. It would not have been obvious to one skilled in the art to combine the teachings of Nelson et al. or Chadha et al. with Herron et al. because it was unexpectedly discovered that when an antibody, i.e. capture molecule, is irradiated with laser

light there is only *de minimis* interference with the resonance Raman spectra. See specification at bottom of page 3. One ordinarily skilled in the art would not have had a reasonable expectation of success to combine the teaching of Herron et al., which discloses the use of immobilized antibodies on a substrate to detect bacteria in an analyte in a fluoroimmunoassay, with Nelson et al. or Chadhra et al., which disclose the identification of bacteria by producing and measuring enhanced resonance Raman spectra, because whether the enhanced resonance Raman spectra of antibodies would interfere with the enhanced resonance Raman spectra of the bacteria was unknown and not taught or suggested by Herron et al. Therefore, Applicant submits that the obviousness rejections have been rebutted.

Applicant respectfully submits that the claims are now in condition for allowance and the same is earnestly solicited.

Respectfully submitted

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